

D

***Competitive Network Alternatives
In Eight Typical GTE Franchise Areas***

Prepared Under the Direction Of

**Dr. Paul Rappoport
Chief Technology Officer**

**PNR & Associates, Inc.,
An INDETEC International Company**

May 24, 1999

Section	Pages
I. Introduction	4
II. Executive Summary	10
III. Analysis Of Facilities-Based Competition In Eight Franchise Areas	13
Allegiance Telecom	24
AT&T	28
Cox Communications	31
e.spire	33
Focal Communications	36
Frontier	39
GST	42
Horry Telephone Cooperative/HTC Communications	45
Hyperion	50
ICG Communications	53
Intermedia (ICI)	57
KMC	60
Level 3	62
Lost Nation-Elwood Telephone	65
Mark Twain Rural Telephone / Mark Twain Communications	67
MCI WorldCom	70
MGC Communications	73
MediaOne	75
Nextlink	77
PacBell CLEC	81
SBC	83
Telligent	85
Time Warner Telecom	88
US LEC	91
USXchange	93
WinStar	95

**IV. CLAIMSsm Analysis: CLEC Facilities, Customer Locations, And
Addressable Market Sizing**

Dallas-Fort Worth, Texas
Los Angeles, California
Tampa, Florida
Ft. Wayne, Indiana
Lexington, Kentucky
Myrtle Beach, South Carolina
Oxford Junction, Iowa
LaBelle, Ewing, and Lewistown, Missouri

V. Appendices

I. Introduction

Purpose

In support of GTE's comments addressing the standards that should apply for determining which ILEC network elements must be made available under the Telecommunications Act, this report profiles competitive activity--especially from facilities-based carriers--in eight markets that are representative of GTE's myriad franchise areas:

- Dallas/Ft. Worth, TX • Los Angeles, CA • Tampa, FL • Ft. Wayne, IN
- Lexington, KY • Myrtle Beach, SC • Oxford Junction, IA • LaBelle, Ewing, and
Lewistown, MO

The objective is to depict and, wherever possible, quantify the extent of CLEC facilities deployment and customer growth in each market.

The report is structured as follows. Section two provides an executive summary of the main findings. Section three presents a "top-down" view of market entrants, their strategies, and capabilities. Section four contains a "bottom-up" view of CLEC entry with numerous maps of CLEC facilities and customers. The appendix lists tables of addressable statistics and listings of CLEC switches.

Scope

The research design incorporates a "top-down" qualitative market analysis with a "bottom-up" quantitative approach. The "top-down" component includes competitive assessments and intelligence on marketing strategies. The "bottom-up" component identifies competitive fiber, switch, and customer locations by CLEC to provide a comprehensive view of the market. Additionally, the addressable market, based on CLEC facility and customer

I. Introduction

locations, is quantified. The root analysis is based on PNR's proprietary CLAIMSSM process for identifying and quantifying bypass.

This research focuses on CLEC provision of "traditional" voice and data products to business and residential customers. For our purposes, bypass is defined to include business and residential non-GTE provision of telephony via wireline, fixed-wireless, or cable television-based networks. PCS and traditional cellular telephony do not fall within the scope of this research.

Timing

An initial portion of this research specifically on Tampa and Los Angeles was conducted between November 1998 and January 1999. In preparation for the current proceeding, research was expanded to the remaining six market areas in March and April 1999.

Project Focus

This research focuses on the number and distribution of switched access lines, the penetration rates of specific CLECs, the identification of specific customers and points of entry and the estimation of the number of facility based CLEC provisioned lines.

I. Introduction (continued)

Methodology

For the "top-down" assessment of CLEC targeting and strategy, multiple techniques were employed, including on-site interviews and surveys of publicly available information. Vendors were retained to conduct research for the Tampa, Los Angeles, and Dallas markets.

Specifically, for the Tampa and Los Angeles markets, Markowitz & McNaughton, Inc. ("MMI") conducted interviews with CLEC senior executives (i.e., Vice Presidents, Directors), staff management (i.e., marketing managers, field managers), staff (i.e., technical, customer service), and others whose viability depends on the local access telephony segment of the telecommunications industry. MMI Telecommunications employs interactive conversational research techniques to identify for each CLEC the range of services offered, typical customer profiles, and the extent of bypass activity. The research techniques are designed to elicit cooperative, unbiased responses that provide a view into the activity and mindset of key competitors. For each CLEC, the following specific topics were addressed in the course of the interviews:

- Number of lines (resale, UNE, total bypass)
- Identification and assessment of current facilities
- Types of services offered
- Marketing strategies and targets
- Utilization of excess capacity
- Expansion plans
- Customer mix
- Key competitors

For the Dallas-Ft. Worth area, Quality Strategies, Inc., (QS) provided competitive market analyses based on research through extensive review of publicly available information and selected contact with firms in the Dallas-Fort Worth

area. Information collected externally for these markets has been supplemented by any additional information that GTE and PNR cooperatively were able to glean or infer based on specific research in preparation for this proceeding. For Ft. Wayne, Lexington, and the areas in Iowa and Missouri, all "top-down" information is based entirely on GTE's research or on inferences from the results of PNR's CLAIMS[™] process.

I. Introduction (continued)

CLAIMStm Methodology

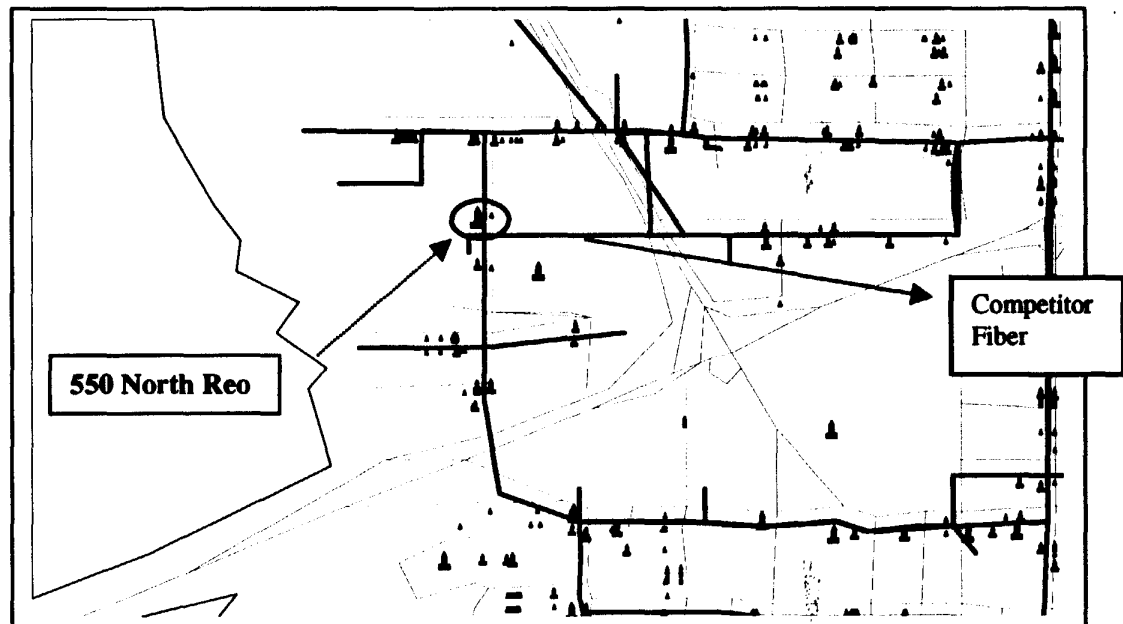
PNR's CLAIMStm process is based on an internal and proprietary process that links site specific information with service provider information. The site specific information includes data obtained from real estate files, reverse directories, public files and business and residential files maintained by other companies. All data used in CLAIMStm is consistently geo-coded and combined into a single location database. This database is the input for PNR's process for constructing a database of geo-coded buildings.

Competitor information is obtained from extensive surveys of end-users, continuous sampling of selected exchanges, and other proprietary sources. The process includes the estimation of bypass lines by CLEC.

The map displays a MCI Metro customer site at 550 N. Reo Avenue. The size of a building is based on the number of firms in the building and is represented by the size of the building symbol. Building concentration often is a good indicator of prospective CLEC activity. There are numerous buildings around 550 N. Reo that MCI could target easily.

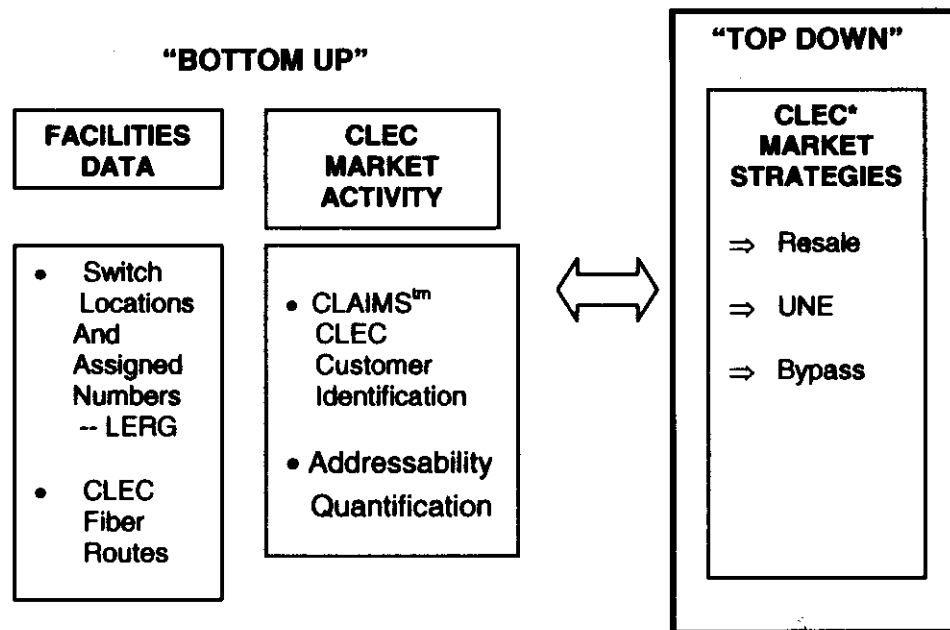
CLAIMStm (Competitor Location Assessment Information Management System)

For the "bottom-up" portion of the analysis, a unique contribution to this research is PNR's CLAIMStm methodology for identifying the location and identity of CLEC customers. Detailed location data is collected for CLEC facilities (switch addresses and fiber routes) and overlaid with a database of known CLEC customers to assess and, wherever possible, quantify current CLEC activity and market addressability by wire center or building cluster. The following CLAIMStm map identifies a building with MCI customers. Competitor fiber is displayed. Other buildings near the same location also are identified.



I. Introduction (continued)

Framework Of Analysis



* Based on primarily on MMI interviews, QS report, and inferences from PNR's analyses.

II. Executive Summary

The close examination of facility based CLECs in eight GTE markets presents a picture of competition that underscores the availability of alternative facilities for supplying local exchange service. In GTE's primary markets of Tampa, Los Angeles and Dallas, there are numerous competitors successfully providing services to both business and residential customers. A similar pattern is true for the secondary markets as well. Based on PNR's CLAIMS[™] analyses, facility bypass is becoming significant in these markets. There are more than 17 facility based competitors in Los Angeles, 11 in Dallas, 8 in Tampa, 2 in Lexington, and 2 in Ft. Wayne. These competitors include the CLEC arms of Regional Bell Operating Companies, the local arm of IXC's such as AT&T and MCI WorldCom, and multi-market focused CLECs such as ICG, WinStar, Teligent and Level 3.

The investment in switching made by facility based CLECs in these markets is highlighted in the following table:

<u>Market</u>	<u>Lata</u>	<u>Number of Providers</u>	<u>Number of Switches</u>
Los Angeles, CA	730, 734, 973	22	47
San Francisco, CA	552	27	45
Tampa, FL	952	14	20
Dallas, TX	334	2	2
Phoenix, AZ	466	2	2
San Antonio, TX	432	1	8
San Diego, CA	520, 524	2	3
San Jose, CA	634	2	3
Total		72	130

CLECs have also deployed fiber in many of these markets. For example,

- In Tampa, competitors have deployed 477 miles of fiber within the GTE franchise area. 55.3% of buildings with more than 25 firms are within 1000 feet of competitor fiber. 83% of the buildings are within a radius of 18,000 feet of a competitor switch. Close to 60% of all multi-family buildings are within the 18,000 foot radius.
- In Los Angeles, competitors have deployed over 1,290 miles of fiber within the GTE franchise area. 24.2 % of all buildings are within 1000 feet of competitor fiber. 62.8% of the buildings are within the 18,000 foot radius.
- In Dallas, competitors have deployed 678 miles of fiber in the GTE franchise area. Over 95% of buildings with more than 25 firms in GTE's franchise area are within 1000 feet of competitor fiber. Over 96% of all residential customers are within 1000 feet of competitor fiber.
- In Lexington competitors have deployed 175 miles of fiber in the GTE franchise area. 80% of buildings in Lexington are within 1000 feet of competitor fiber.
- In Myrtle Beach and Iowa, telephone cooperatives have essentially duplicated GTE's existing network. These co-ops have been successful in capturing customers because they can offer essentially the same services at significantly lower rates. These lower rates are possible due to subsidies the co-ops are able to receive.

CLECs have deployed their networks and have concentrated their marketing efforts in areas where there is a high concentration of buildings and businesses. They have also focused on covering those areas where there are larger multi-family structures. Their networks have the potential of readily reaching a significant portion of the market in all areas included in this analysis.

GTE competitors include the CLEC arms of established RBOCs. For example, in Dallas and Los Angeles, CLECs associated with SBC and PacBell, respectively, have become significant competitors to GTE. These CLECs utilize switches associated with their ILEC counterparts in the provisioning and transport of local exchange services. GTE's current largest competitor in their Dallas franchise area is SBC. SBC has entered this market by purchasing UNEs.

II. Executive Summary (continued)

- In the smaller exchanges in Iowa and Missouri, facility-based bypass by the co-ops is fast approaching 100%
- Given the deployment of fiber in Myrtle Beach by the CLEC of the Horry Telephone Company, significant losses due to facility-based bypass are expected.

There is a measurable and growing number of access lines associated with facility-based bypass providers in GTE's major franchise areas. For example, in Tampa, the number of lines attributed to bypass has increased from an estimated 6,600 lines in November, 1998 to over 16,700 lines in April, 1999. In April, 1999, the bypass share of business lines in Tampa was over 3%.

CLECs are becoming more successful in their marketing efforts. For example, MCI Worldcom has targeted firms that have operations in other states. They have been able to capture "national" firms by combining local service with their national account offers covering long distance services. Following this approach, MCI was successful in capturing a large insurance provider in Tampa. That one customer accounted for an OC-12 order.

Similar growth rates are observed for GTE's Dallas and Los Angeles franchise areas.

III. Analysis of Facilities-Based Competition in Eight Franchise Areas

Estimated lines for selected CLECs are provided in the accompanying tables. These estimates were obtained using PNR's CLAIMS[™] process along with PNR's models of wholesale activity. UNE loops were inferred from co-location agreements. Resale estimates were derived from PNR's retail market share survey and calibrated using internal GTE data.

CLEC Market Activity in GTE Franchise Area of Tampa, Florida

Many CLECs recently have deployed their own fiber and class five switches within the Tampa MSA to facilitate transport and local switching without reliance on GTE's network. As the table below demonstrates, three of the seven facilities-based CLECs in the Tampa area are purchasing UNE loops from GTE; the others are using either their own facilities entirely or a combination of service resale and total bypass. The quantity of CLEC bypass lines has grown nearly threefold from an estimated 6,600 in December, 1998 to 16,000 lines by April, 1999; this underscores that CLECs in the Tampa area are utilizing their own facilities as the preferred means to reach customers.

TAMPA			
CLEC Name	Bypass	Resale	UNE
AT&T	192	33	16
e.spire Communications	1,310	2,940	14
Intermedia Communications (ICI)	2,000	4,750	
MCI Worldcom	10,117	18	7
Time Warner Telecom	125		
US LEC	74		
WinStar	2,000	9	

CLEC Market Activity in GTE Franchise Area of Dallas, Texas

With respect to competitive activity, Dallas is a more mature market than many others. CLECs such as AT&T, MCI Worldcom, e.spire have been active in the Dallas-Fort Worth Metroplex for several years. Due to the nature of the ILEC franchise boundaries, GTE and Southwestern Bell also compete, with SBC advancing heavily into GTE's territory. In particular, MCI and SBC have been the most active in facilities deployment. Whereas SBC utilizes GTE's UNE loops extensively to target residential and business customers, MCI bypasses GTE's network entirely. As the table below demonstrates, MCI's presence in GTE's Dallas market area is one of a pure facilities-based full-service provider.

DALLAS			
CLEC Name	Bypass	Resale	UNE
Allegiance	800		
AT&T	75	50	
e.spire Communications		41	
Frontier	76		
MCI Worldcom	7,710		
SBC	3,350	175	16,847
WinStar	175		

CLEC Market Activity in GTE Franchise Area of Los Angeles, California

Of all the markets analyzed here, Los Angeles has the most facilities-based competitors in GTE's franchise areas. With a dense concentration of high-value business and residential customers, Los Angeles also exceeds the other markets in the number of competitive switches and bypass lines. As the table below indicates, the growing facilities-based competition reflects minimal dependence on ILEC network. Most CLECs prefer to bypass the incumbent completely. In fact, the analysis reveals that in just three months (January-April, 1999), the quantity of CLEC-provisioned facilities-based lines grew from 29,190 to 37,442.

LOS ANGELES			
CLEC Name	Bypass	Resale	UNE
Allegiance	25		
AT&T	7,150	10	
Cox Communications	185		
Focal Communications	350		
Frontier	25	36	
GST Telecommunications	2,770	1,100	
ICG Communications	8,215	900	
MCI Worldcom	10,491	2,596	
MGC Communications	116		5,274
MediaOne	150		
NextLink	2,400		1,020
PacBell CLEC	2,775		
Teligent	50		
Time Warner Telecom	95	400	
WinStar	2,645		

CLEC Market Activity in GTE Franchise Area of Ft. Wayne, Indiana

Facilities-based competition is just beginning to accelerate in Ft. Wayne, Indiana. KMC and USXCHANGE have been viable resale competitors that also have constructed networks with switching and transport capacity. USXCHANGE turned up its switch in late 1998 and has just begun to transfer its resale customers over onto GTE's unbundled loops. Thus, the story in Ft. Wayne truly is one of market addressability. Even modest estimates of these CLECs' ability to reach customers from their own facilities locations suggest nearly 60% of GTE's customers in the area are addressable upon customer request. With the modest size of the market and the facilities now in place, Ft. Wayne will be an interesting market in which to monitor further development of competition.

FT. WAYNE			
CLEC Name	Bypass	Resale	UNE
KMC Telecom		450	
USXCHANGE (USX)		2,800	2

CLEC Market Activity in GTE Franchise Area of Lexington, Kentucky

Similar but slightly ahead of Ft. Wayne, the Lexington market contains two competitors that utilize service resale but also have built their own facilities. A third entrant, Bell South's CLEC, also recently deployed its own network and switch. Hyperion's operations are the most extensive at this point. Hyperion is a fully facilities-based CLEC, an integrated local and long distance provider, and it partners with TCI/Intermedia in the area for both leased facilities and construction activities, an example of wholesale alternatives to GTE's network elements.

LEXINGTON			
CLEC Name	Bypass	Resale	UNE
e.spire Communications		340	
Hyperion	1,350	1,640	51

CLEC Market Activity in GTE Franchise Area of Myrtle Beach, South Carolina

GTE's local distribution systems in the Grand Strand—from North Myrtle Beach south to Georgetown, South Carolina, are being completely duplicated by HTC Communications, the CLEC affiliate of Horry Telephone Cooperative; this may be the most extensive example nationally where a CLEC with the advantages of a cooperative is using its clout to expand into increasingly metropolitan areas. With total facilities bypass, HTC recently has begun retailing service in Conway, South Carolina, quickly capturing several hundred customers. Additionally, HTC is in the process of building a similar network throughout Myrtle Beach, where it also will compete as a cable carrier against Time Warner, and in Georgetown. In Georgetown, the municipality has contracted with HTC to build an extensive network that should become operational in July 1999. These GTE exchanges in South Carolina should be monitored closely as the area becomes a hotbed for competition.

MYRTLE BEACH			
CLEC Name	Bypass	Resale	UNE
Horry Telephone Cooperative / HTC	474		

CLEC Market Activity in GTE Franchise Area of selected Missouri Exchanges

The three exchanges of Labelle, Lewistown, and Ewing were selected because they are representative of GTE's diverse service areas and the nature of rural competition. The rural cooperative CLEC that is competing with GTE in these exchanges has succeeded in capturing more than 60% of GTE's line share in these 3 exchanges, and done so, through pure facilities based bypass. Mark Twain Rural Telephone Company has duplicated GTE's distribution network to where it could potentially serve every last customer in these three exchanges. Mark Twain employs its ILEC network, located in neighboring exchanges, for transport and switching, and it procures no network elements from GTE.

MISSOURI			
CLEC Name	Bypass	Resale	UNE
Mark Twain Rural Telephone	574		

CLEC Market Activity in GTE Franchise Area of Oxford Junction, Iowa

Like the GTE exchanges in Missouri, Oxford Junction, Iowa, is an excellent example of complete facilities bypass by a rural cooperative. The Lost Nation-Elwood Telephone Company (Lost Nation) has completely duplicated GTE's distribution network in Oxford Junction. Unlike GTE Network Services, Lost Nation is able to offer a complete bundle of services, including Internet and cable television. Lost Nation has succeeded in capturing nearly 100% of GTE's customers in the exchange. Significantly, 75% of GTE customers were lost from Oxford Junction within a one-month time frame, which underscores why it is essential that rapid growth of competition be monitored closely.

IOWA			
CLEC Name	Bypass	Resale	UNE
Lost Nation - Elwood	370		

Facilities-Based Competitors By GTE Franchise Area

LOS ANGELES, CA	DALLAS/FT. WORTH	TAMPA, FL
AT&T MCI WorldCom Intermedia (ICI) WinStar Teligent	AT&T MCI WorldCom Intermedia (ICI) WinStar Teligent	AT&T MCI WorldCom Intermedia (ICI) WinStar Teligent
	e.spire	e.spire
Level 3 Frontier Allegiance NextLink Pac-Bell CLEC	Level 3 Frontier Allegiance NextLink SBC CLEC	Time Warner US LEC ET. WAYNE, IN KMC US Xchange
Focal GST MediaOne ICG MGC Cox	LEXINGTON, KY Hyperion ICG	
	e.spire	MYRTLE BEACH, SC
Time Warner	BellSouth CLEC	Horry Telephone Co./HTC Communications
		Time Warner
	OXFORD JUNCTION, IA Lost Nation - Elwood Telephone Co.	LABELLE, EWING, AND LEWISTOWN, MO Mark Twain Telephone Co./Mark Twain Comm.

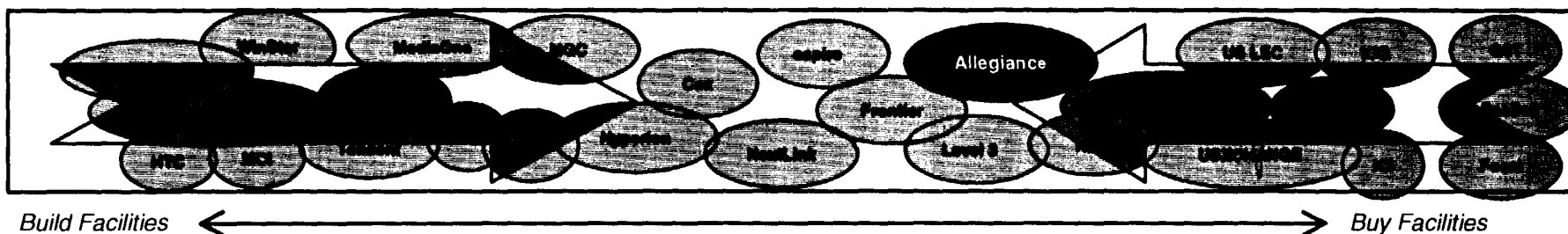
CLEC Deployment of Self-Provided Network Elements

√ = Self-supplies network element in one or more areas
 ☆ = Generally leases network element from other carriers

Blank = No information available

CLEC Name	Switching	Transport	Loops/NID	OSS	SS7	OS/DA
Allegiance	√	√	☆	√	√	☆
AT&T	√	√	√	√	√	√
Cox California Telecom CLEC	√	√	√			☆
e.spire	√	√	√	√	√	☆
Focal Communications	√	☆	☆			
Frontier	√	√	√	√	√	√
GST	√	√	√		√	☆
Horry Telephone Cooperative/HTC Communications	√	√	√	√	√	√
Hyperion	√	√	√			
ICG Communications	√	√	√	√	☆	☆
Intermedia (ICI)	√	√	☆	√	☆	☆
KMC Telecom	√	√	√			
Level 3	√	√	☆			
Lost Nation-Elwood Telephone	√	√	√	√	√	√
Mark Twain Rural Telephone Co./MarkTwain Comm. Co.	√	√	√	√	√	√
MCI WorldCom	√	√	√	√	√	√
MGC Communications	√	√	☆			
Media One	√	√	√			
Nextlink	√	√	√	√	☆	☆
PacBell CLEC	√	√	☆	√	√	√
SBC CLEC	√	√	☆	√	√	√
Teligent	√	√	√	√	☆	√
Time Warner Telecom	√	√	√			√
US LEC	√	√	☆		√	
USXCHANGE	√	√	☆	√		
WinStar	√	√	√	√	☆	☆

Allegiance Telecom Synopsis



Dallas-based Allegiance Telecom, Inc. is a facilities-based carrier that deploys its own switching in every market that it competes: major metropolitan areas across the United States. Allegiance targets small and medium-sized businesses as well as government and institutional customers with a comprehensive package of telecommunications services that includes local, long distance, international calling, enhanced services, high-speed data transmission, and Internet services. To provision these services, the company's "smart build" strategy is to deploy switching and back office operation support systems (OSS) but lease available local fiber from existing providers. According to the company's 10Q report to the Securities Exchange Commission on November five, 1998, ILEC transport is not essential to its operations: "the company believes that in most of the markets it plans to enter there are multiple carriers in addition to the ILEC from which it could lease trunking capacity; typically at lower prices than the ILEC price."

As for loops, Allegiance states a classic make, lease, or buy decision in its 10Q report:

Allegiance will lease unbundled copper loop lines and high capacity digital lines from the ILECs to connect the company's customers and other carriers' networks to the company's network. Allegiance plans to lease dark fiber capacity or overbuild specific network segments as economically justified by traffic volume growth or when these arrangements otherwise become more attractive than leasing unbundled network elements.